

Proposed New Jersey Energy Resilience Bank ERB



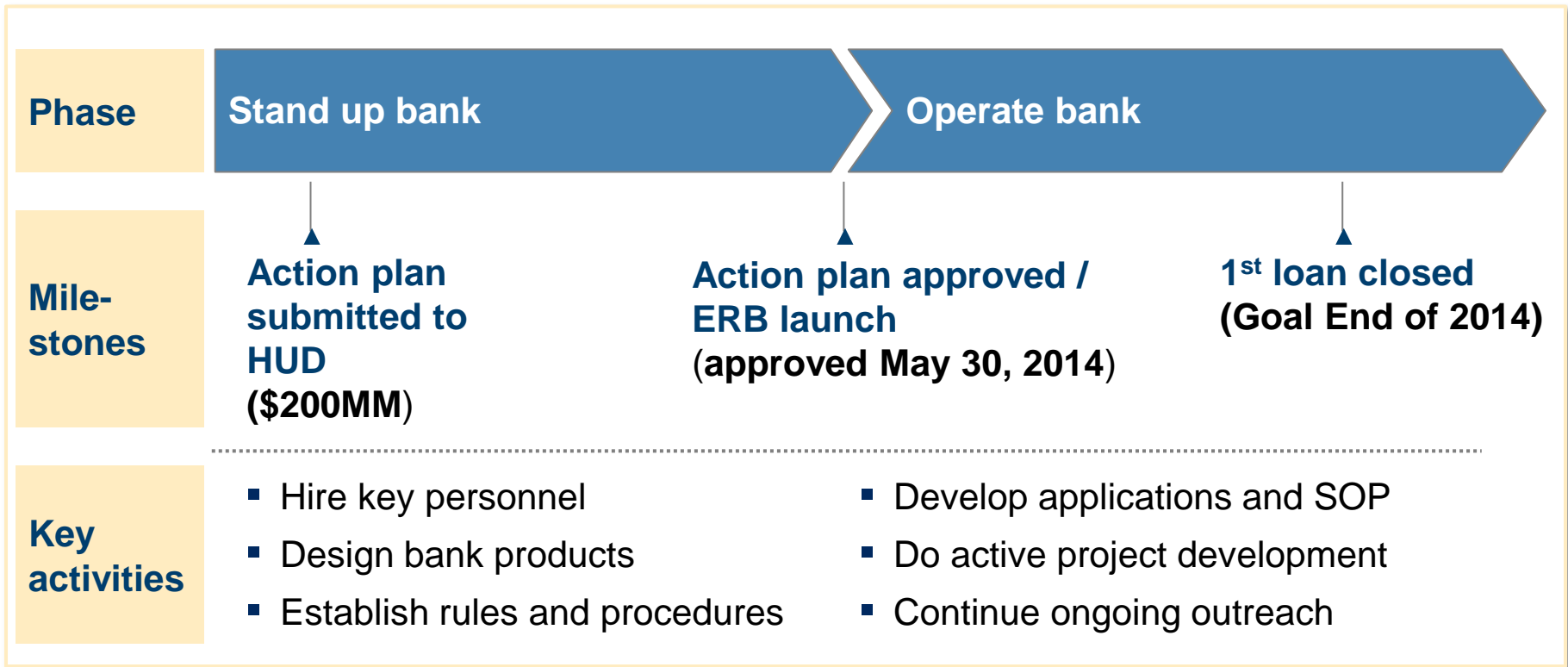
Disclaimer

The information contained herein is for the purpose of initiating a discussion on the proposed New Jersey Energy Resilience Bank (ERB). Any proposals or options discussed herein are **draft, preliminary, and predecisional**. The actual governance structure, products, processes, and procedures of the ERB will be finalized if, and only if, the US Department of Housing and Urban Development (HUD) approves the State's Action Plan Amendment and appropriate board approvals are granted by the relevant New Jersey agencies.



SOURCE: NASA GSFC

The timing of the Energy Resilience Bank will be driven by the federal disaster recovery funding milestones



The Proposed Action Plan Amendment lays out the mission and guiding principles of the Energy Resilience Bank

Mission

“Realizing energy resilience for New Jersey’s critical facilities through financing and technical assistance”

Guiding principles

Prioritize critical facilities

Support resiliency

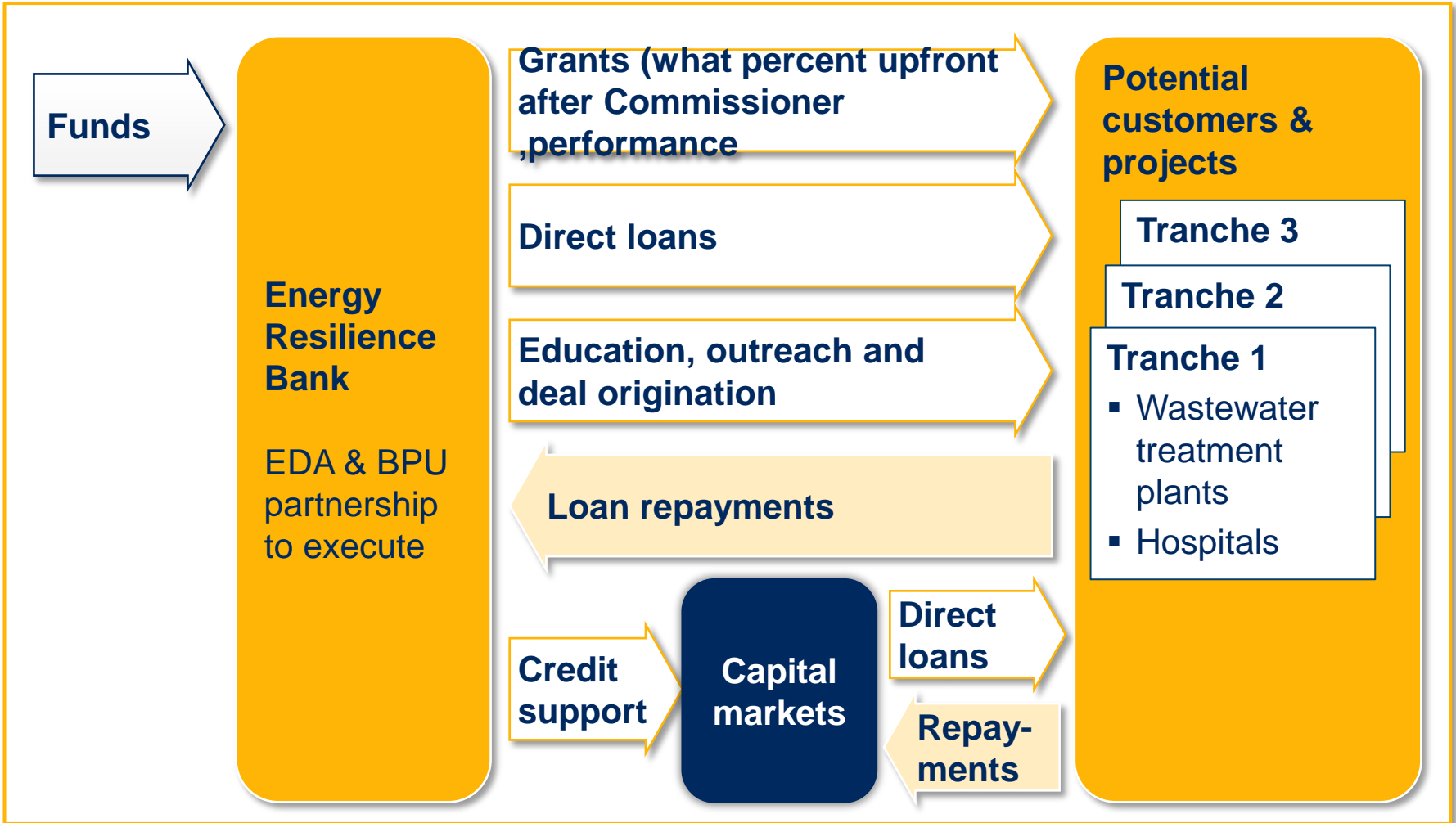
Utilize existing installations where feasible

Be lean, efficient and customer-focused

Prioritize microgrids and consider renewables

Snapshot of preliminary bank design

- Initial capital
- Assistance
- Recapitalization



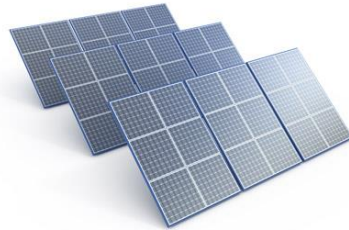
Printed 2014/03/06 01:59 PM Eastern Standard Time

The ERB will fund resilient energy systems for critical facilities

Resilient energy technology is ...

... distributed generation or other technologies

...



... that is islandable and capable of blackstart



Resilient energy technology is not...

...emergency backup generators



Projects must be technically feasible and meet defined credit and economic criteria

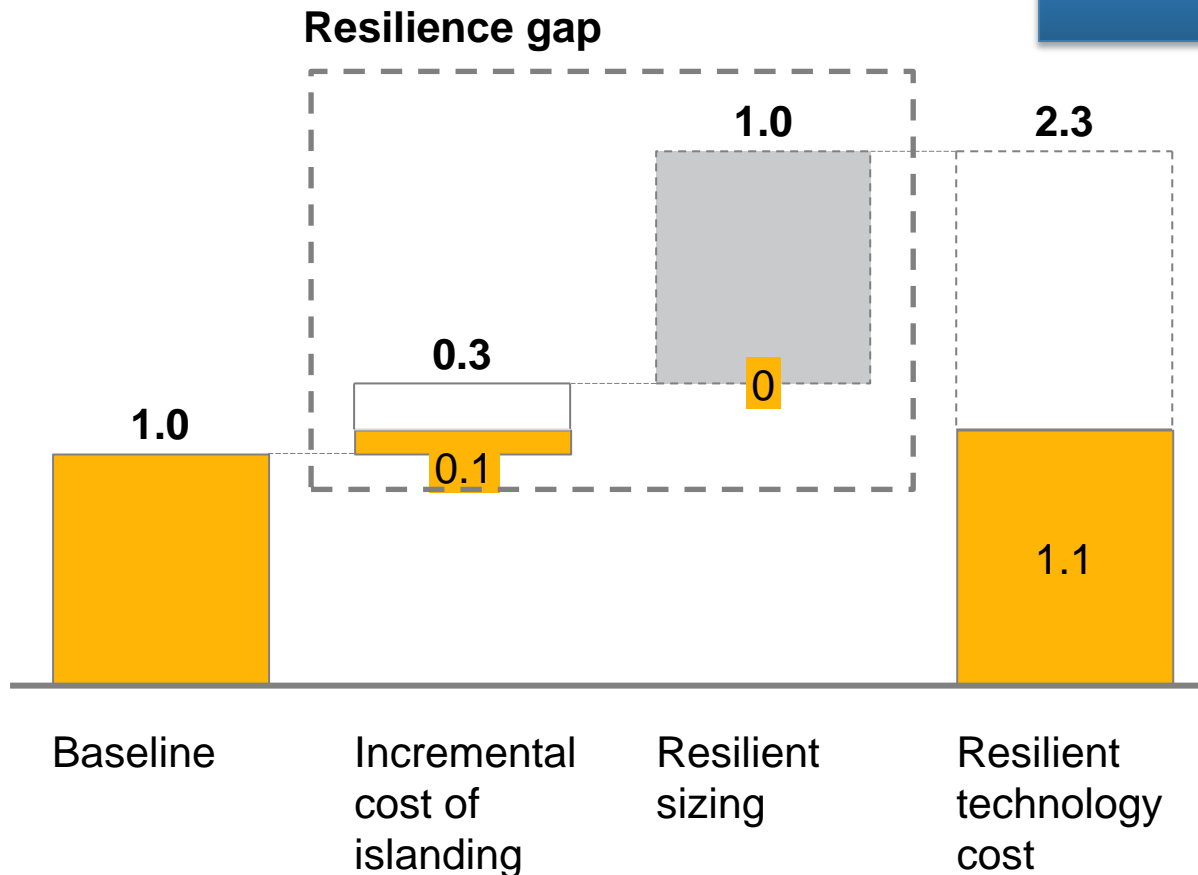
The ERB will help facilities bridge the “resilience gap”

■ To be detailed further

□ Upper range

Cost of resilient energy technology

\$, millions

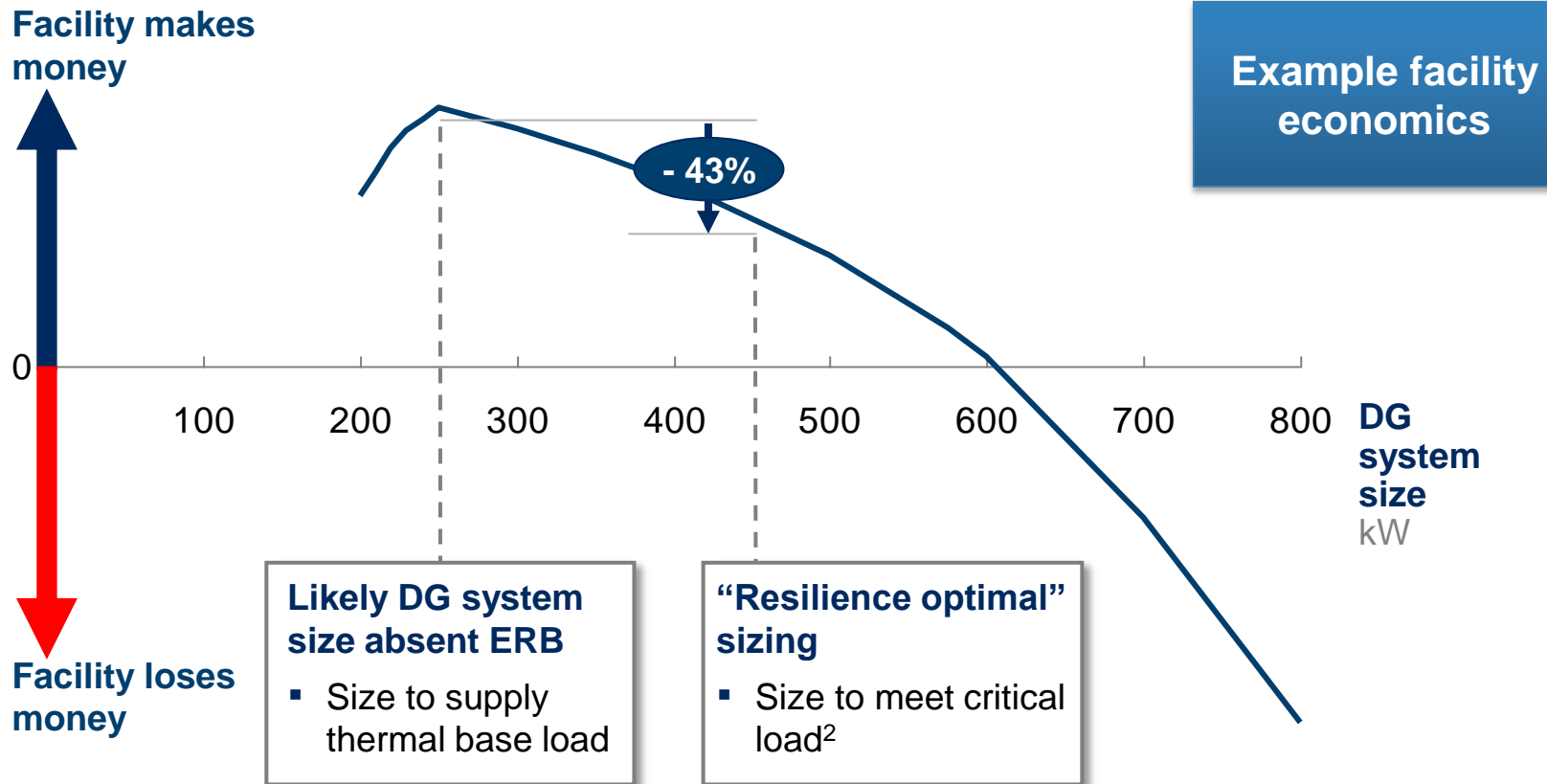


- To be resilient, technology must be island-capable and sized to cover a facility’s critical load (could double cost)
- The costs of making a system resilient will vary from facility to facility (0 to 30% based on new and existing critical wiring)

Absent ERB participation, most facilities would focus on financing DG systems that are less than fully resilient

Relationship between DG system size and benefits to facility

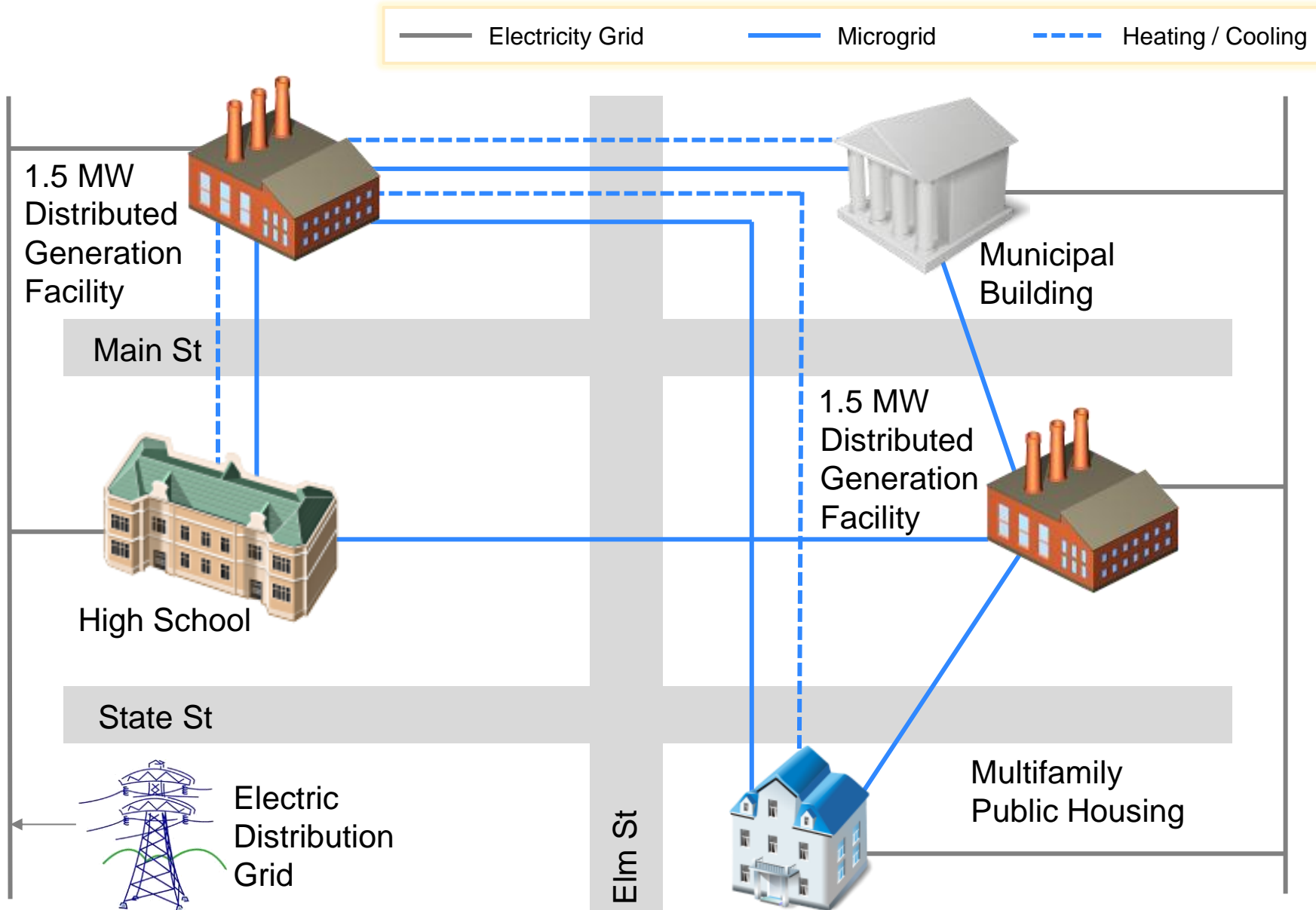
Representative distributed generation economics at NJ critical facility



1 Defined as net present cost (NPC) of grid supplied system - NPC of DG system; key assumptions: \$0.11/kWh electricity rate, \$0.3/m³ natural gas rate, 85% availability, 15 year project life, 8% discount rate; includes existing state incentives, no federal incentives, no biogas RECs

2 The power needed to maintain mission critical operations in the event of a grid failure

What a microgrid could look like, Anytown, NJ



ERB products may include low interest loans and principal forgiveness

Guiding principles

Principle

Description

Share risk and align incentives

- Enable the participation of 3rd party developers
- Encourage outside capital

Support resiliency

- Incentivize build out of resilient energy at NJ's critical facilities
- Help fill "resilience gap"

Offer compelling financing

- Offer interest rates at or better than market
- Market rates may differ by sector

Match repayment with cash flows

- Match term to project lifetime
- Defer debt service payments until savings are realized

Key ERB terms

Term

Outside capital contribution

Principal forgiveness %

(Lower) interest rates

Term, years

Deferment, years

The ERB will provide project development support through the application process

Education and outreach

Project development

Project evaluation

Project installation

Initiation of application

Application submission

Project approval

Most projects will have to meet federal funding requirements, e.g., Davis-Bacon, NEPA

The ERB will focus first on public critical facilities

Representative sectors that may be eligible for ERB



Water and wastewater - round1



Public and Not-for-Profit (NFP) or small business For Profit Businesses (SB-FPB) hospitals round 2



Public long-term care facilities or NFP SB-FPB round 2



State/county colleges and universities or NFP SB-FPB round 3



State and Correctional Institutions round 3



Public housing round 4



Community shelters, e.g., schools or town centers round 4

Timing for the start of a round depends on development of loan product

The ERB is considering including a range of costs for both new and retrofit systems

Eligible costs

New resilient systems

- Feasibility Study
- Core equipment
- Piping & wiring
- Islanding equipment
- Interconnection
- Fuel pre-treatment (e.g., biogas treatment, or gas compression)
- Installation
- Site work
- Engineering and project management
- Hardening of resilient energy system (e.g. elevation)

Resilient retrofits

- Additional core equipment (e.g., battery storage for existing solar system)
- Islanding equipment
- Interconnection
- Installation
- Engineering, project management, and administration
- Hardening of resilient energy system (e.g. elevation)

Non-eligible costs

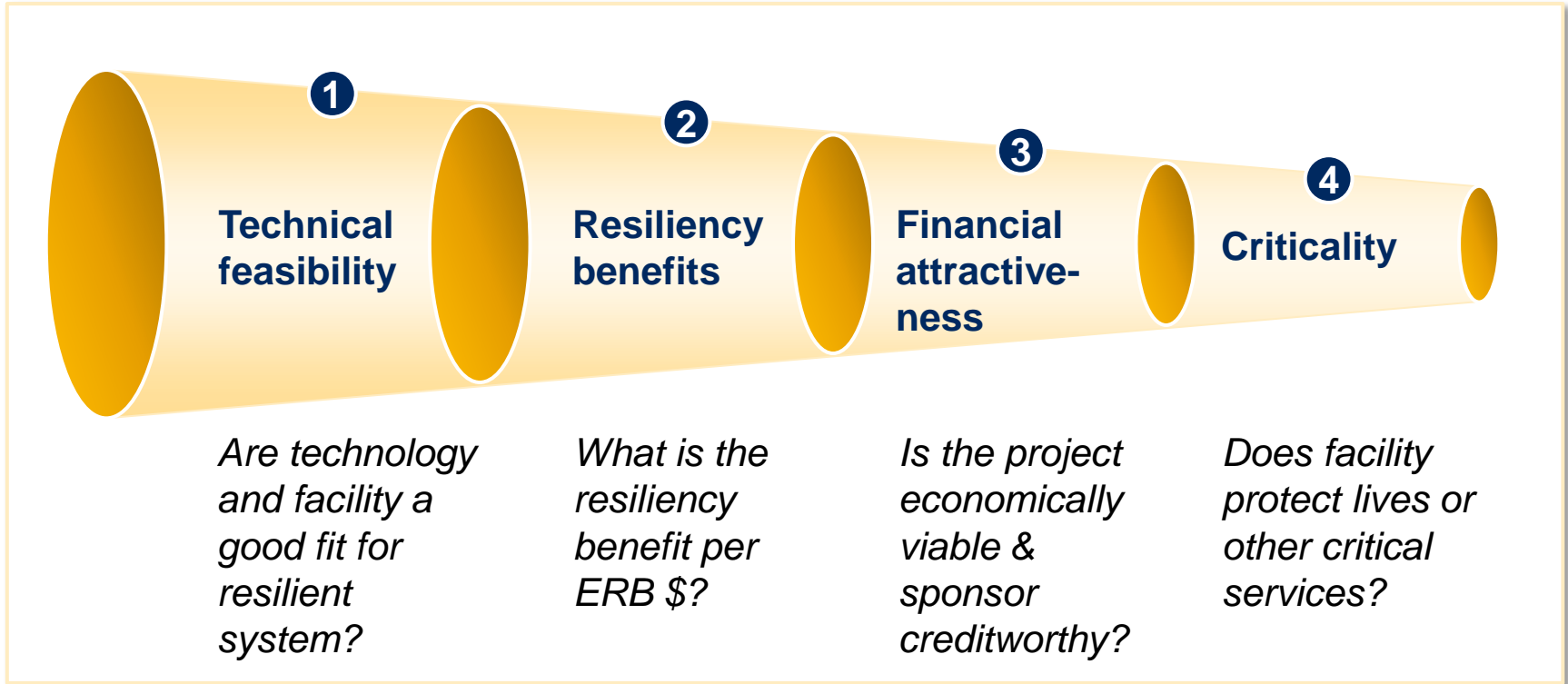
Backup generators

- Emergency backup generators
- Onsite fossil fuel storage for emergency generators
- Transfer switches to support backup emergency generators

Other non-energy hardening

- Flood walls
- Elevation





ERB is considering evaluating projects based on four criteria



Projects will need to be cost effective to be funded and will need to meet other federal and state requirements

The ERB will support a range of contracting options

Spectrum of contractual arrangements between public facilities and developers¹

Contract type	Direct procurement	...	Power Purchase Agreement (PPA)
Description	Facility directly procures equipment		Developer owns and operates equipment; facilities purchase energy at pre-determined rates
Equipment operator	Facility		Developer
Equipment owner	Facility		Developer
Balance sheet impact	Facility		Developer
Commodity exposure	Facility		Developer
Federal incentives	Unavailable		Available
Fit with ERB	Best return for facilities, but more risk and hassle than most owners will accept		Viable long-term structure, but initial transaction costs may be high

¹ Non-exhaustive; other viable alternatives include Build-Own-Operate, Build-Own-Operate-Transfer, Energy Savings Performance Contract and more

Potential key next steps for the ERB

- ERB establishes products, processes and procedures
- Bank opens for applications, following approval from HUD
- Co-development of projects with early customers
- Closing of first bank deals